SHARP Service Manual

MODEL
GF-2000H
GF-2000X

SPECIFICATIONS

GENERAL

Type:	Portable cassette tape recorder with MW/FM radio.
Power source:	AC: 110/220/240V, 50Hz (GF-2000H) AC: 110/220/240V, 50/60Hz (GF-2000X) DC: 6V (four UM/SUM-1 batteries or external DC power)
Speaker:	10cm P.D.S., 8-ohms impedance
Output power:	Maximum 1.5W
Semiconductors:	2-IC (Integrated circuit) 14-Transistor 13-Diode 2-LED 1-Ceramic filter
Input terminals:	MIC IN
Output terminals:	EARPHONE (8 ohm impedance)
Input/Output terminal:	Record/Playback socket (DIN)
Other terminals:	AC socket DC 6V jack Remote control jack Timer jack
Dimensions:	290(W) x 79(D) x 223(H) mm
Weight:	2.8kg (without batteries)

TAPE RECORDER SECTION

Type:	2-track monaural
Tape:	Philips type compact cassette tape
Tape speed:	4.8cm/sec
Frequency response:	80～10,000Hz
S/N ratio:	45dB
Wow and flutter:	0.45% DIN (GF-2000H) 0.25% WRMS (GF-2000X)
Fast forward time:	100 sec (with C-60 tape)
Rewind time:	100 sec (with C-60 tape)
Recording system:	AC bias
Erasing system:	DC erasing

RADIO SECTION

Frequency range:	MW 520–1620kHz FM 87.6–108MHz
Intermediate Frequency:	MW 455kHz FM 10.7MHz

CABINET DISASSEMBLY

(1) Pull out the power cord plug and adaptor plug from the unit.
(2) Take out the cassette tape from the cassette compartment and four batteries from the battery compartment.
(3) Remove the volume, tone and mic-volume control knobs and tuning knob.
(4) Remove five screws retaining the cabinet back and lightly open it.
(5) Disconnect the tip connected to the rod antenna and remove cabinet back.
(6) Remove 5 screws (red) retaining the mechanism chassis block.
(7) Remove 3 screws (red) retaining the tuner block.
(8) Remove 2 screws (red) retaining the switch block.
(9) Remove 2 screws retaining the control block.
(10) Remove 2 screws retaining the built-in microphone.
(11) Unsolder the lead wires connected to the speaker and battery terminal.
(12) Now, the cabinet front is ready for removal.

SHARP CORPORATION OSAKA, JAPAN

PARTS IDENTIFICATION

(Refer to Figure 1)

(1) Stop key
(2) Fast forward key
(3) Play key
(4) Rewind key
(5) Record key
(6) Cassette eject key
(7) Microphone volume control
(8) Tone control
(9) Volume control
(10) Tuning control
(11) Band selector switch
(12) Tuning dial
(13) Built-in microphone
(14) Tape selector switch
(15) Radio-tape selector switch
(16) Tuning indicator
(17) Tape running indicator
(18) Digital tape counter
(19) Cassette holder
(20) Telescopic rod aerial
(21) Microphone jack
(22) Remote control jack
(23) Sleep timer jack
(24) Earphone jack
(25) Record/Playback socket (5 pin, DIN)
(26) DC power input jack
(27) Mains power supply socket
(28) Voltage selector
(29) Battery compartment
(30) Counter reset button

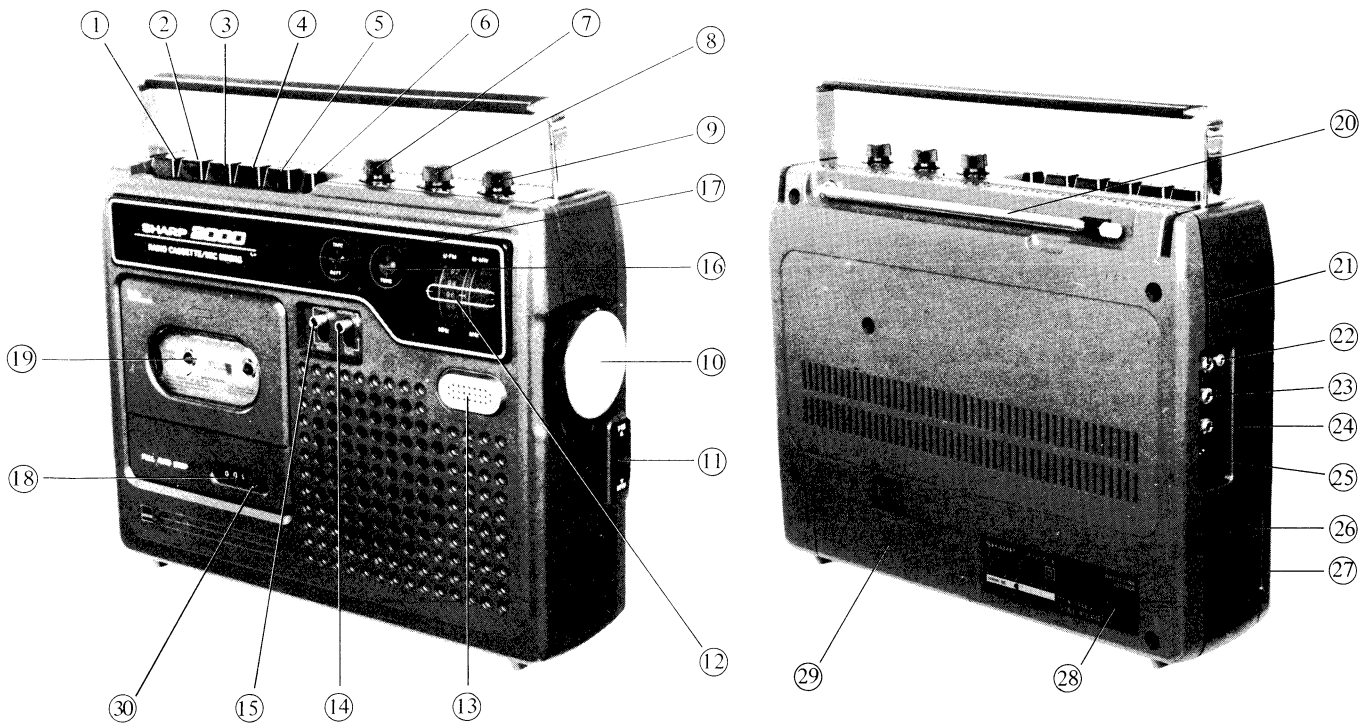


Figure 1

■ ADJUSTMENT OF AUTO STOP MECHANISM

(1) ADJUSTING THE ALLOWANCE OF CONNECTING LEVER (Refer to Figure 2)

Put the position of drive pulley so that gear pin (c) moves lever (d) to its farthest position as shown in Figure 2. Keeping the connecting lever (152) in the direction of arrow (b), adjust the allowance along the direction of arrow (a) to 0.1 – 0.5mm with adjusting screws (109).

(2) ADJUSTING THE POSITION OF DETECT PIN (Refer to Figure 3 and Figure 4)

Put the position of drive pulley so that gear pin (c) is not in contact with lever (d). Setting the unit in stop mode, adjust the lever (a) by bending it so that detect pin is in the slot of detect cam as shown in Figure 4.

(3) ADJUSTING THE POSITION OF DETECT CAM (Refer to Figure 3 and Figure 5)

Setting the unit in the condition as shown in Figure 3, and set unit in rewind mode. Adjust the clearance between the brake lever and detect cam to 1 – 2mm when the detect pin engages with the cam as shown in Figure 5.

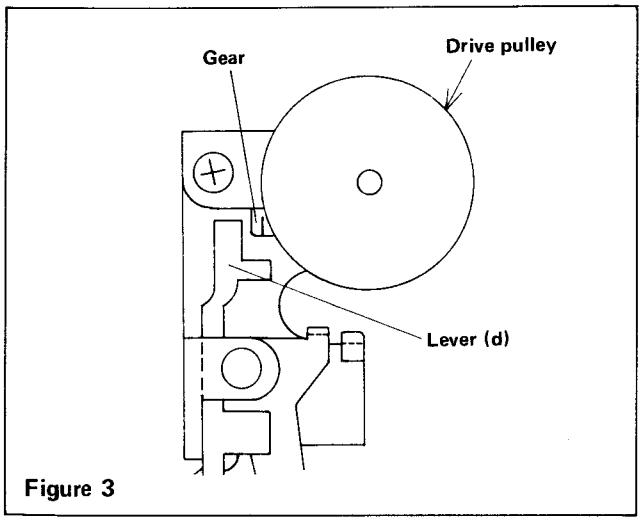


Figure 3

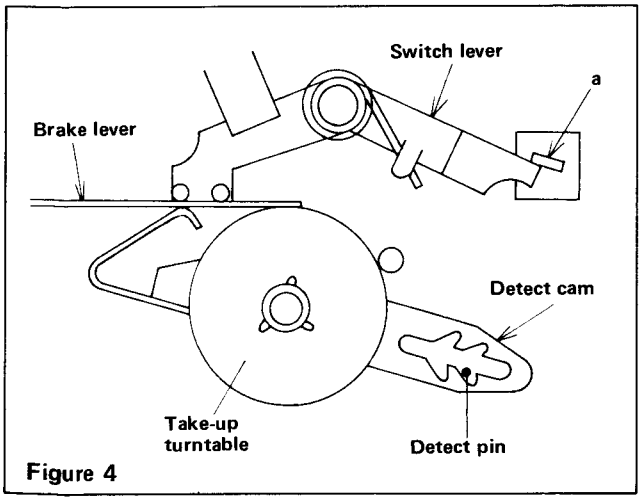


Figure 4

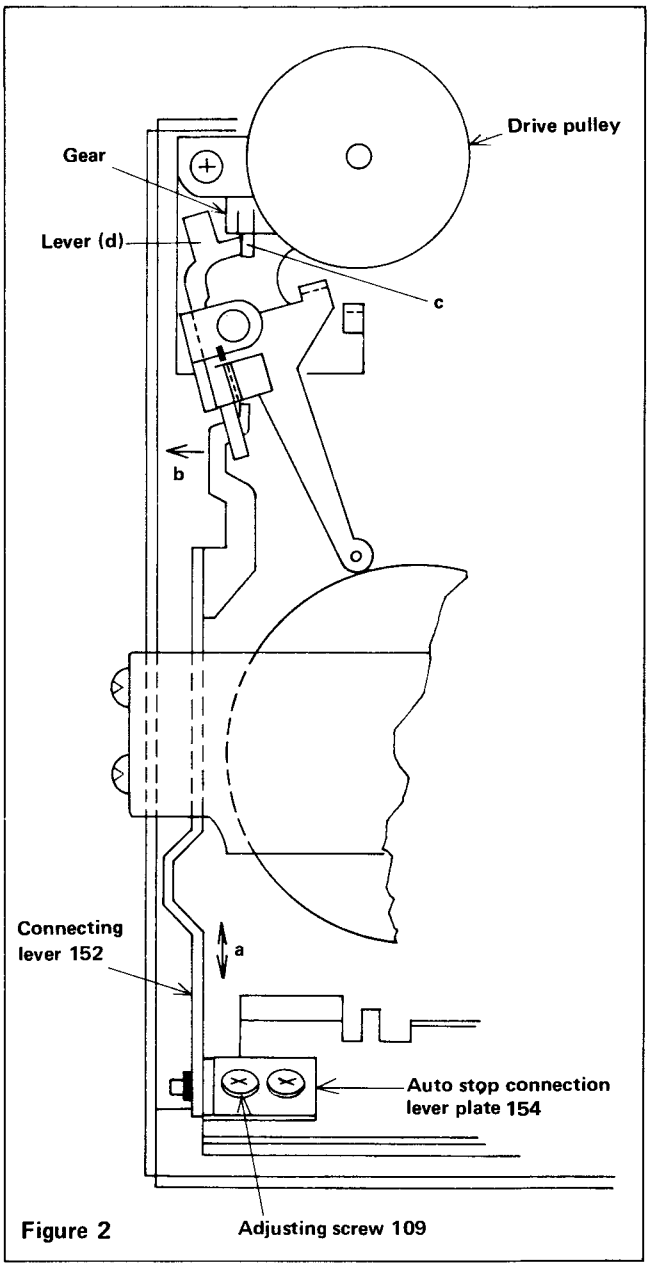


Figure 2

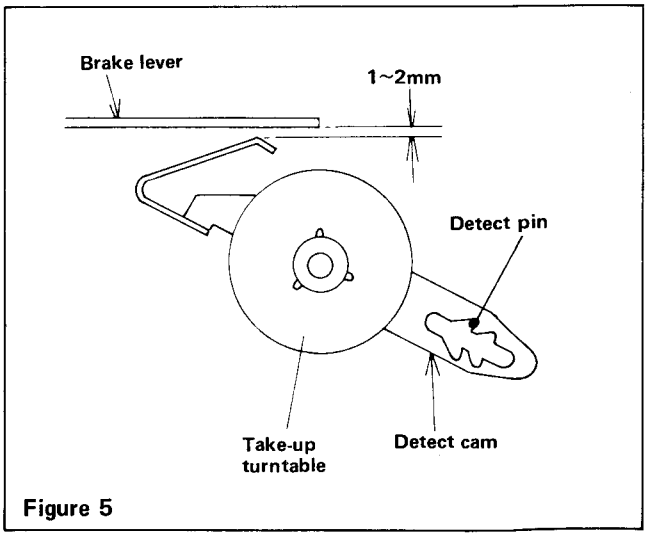


Figure 5

■ ADJUSTMENT OF THE LEAF SWITCH POSITION (Refer to Figure 6)

(1) Loosen the leaf switch fixing screws and adjust the contact of the switch so that in STOP mode the movable contact leaf of the switch contacts the movable part of the switch lever and the distance between the movable and fixed contacts of the leaf switch is 1 – 2mm.
After adjustment firmly tighten the fixing screws.

(2) Adjustment is satisfactory if the contact of the switch can move 1 to 2mm farther after it has contacted the other contact leaf in PLAY, FF and REW modes.

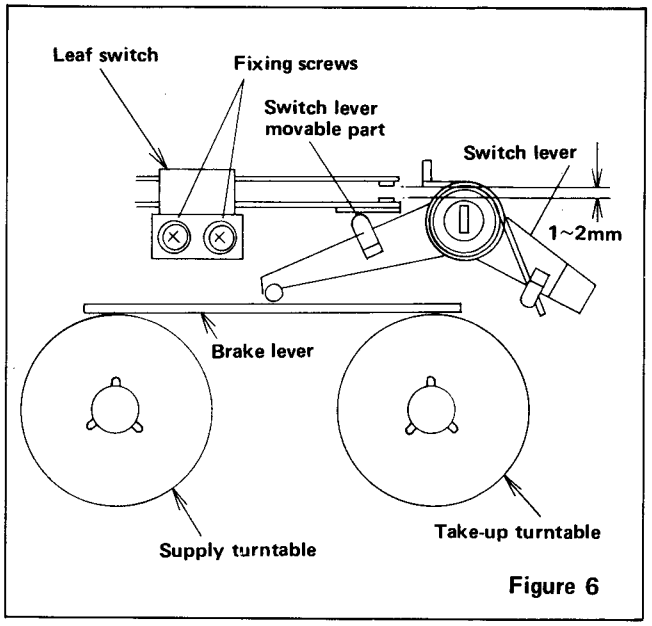


Figure 6

■ ADJUSTMENT OF THE FLYWHEEL THRUST (Refer to Figure 7)

(1) Fasten the adjusting screw so that the thrust clearance of the flywheel is between 0.3 and 0.5mm.
After adjustment, lock the adjusting screw with a lacquer to prevent loosening.

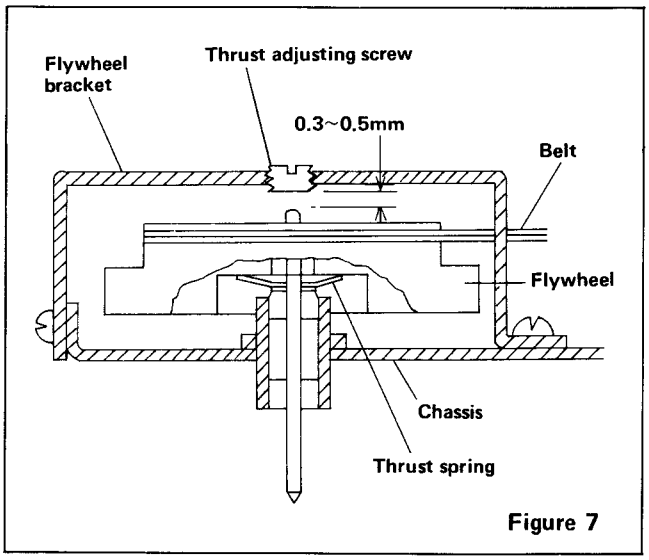


Figure 7

■ ADJUSTMENT OF THE MOTOR PULLEY HEIGHT (Refer to Figure 8)

(1) Loosen the motor pulley fixing screws and adjust so that the height of the motor pulley from the chassis becomes 11 ~ 12mm.

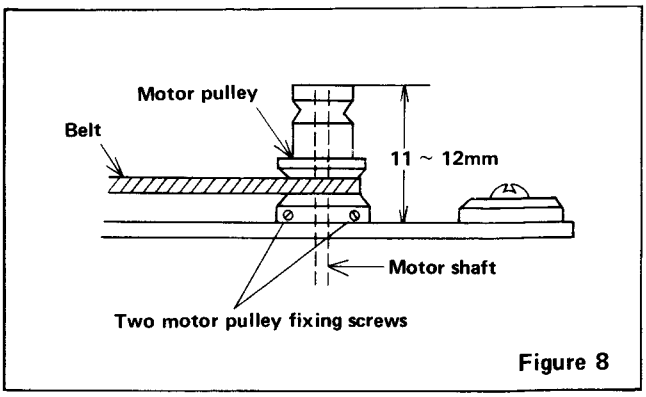


Figure 8

■ ADJUSTMENT OF THE TAKE-UP TORQUE (Refer to Figure 9)

(1) The take-up torque during PLAY mode should be 35 – 70g.cm. If the take-up torque is below 35g.cm, set the PLAY mode and check whether the drive pulley stops when the take-up turntable stops rotating. If the drive pulley is still turning after the take-up turntable stops, clean the drive pulley and the rubber tire of the take-up turntable with alcohol. Check if there is slippage between the supply turntable and the drive pulley and measure the take-up torque again. If the take-up torque is still not 35 – 70g.cm, replace the slip roller assembly (042).

(2) The take-up torque during REW or FF mode should be 40 – 90g.cm. When the take-up torque is below 40g.cm, set the REW or FF mode and stop the rotation of the supply or take-up turntable. If there is slippage between the idler and turntable, clean the turntable and idler with alcohol. Then, measure the take-up torque again. If the take-up torque is not 40 – 90g.cm, replace the idler lever assembly (031).

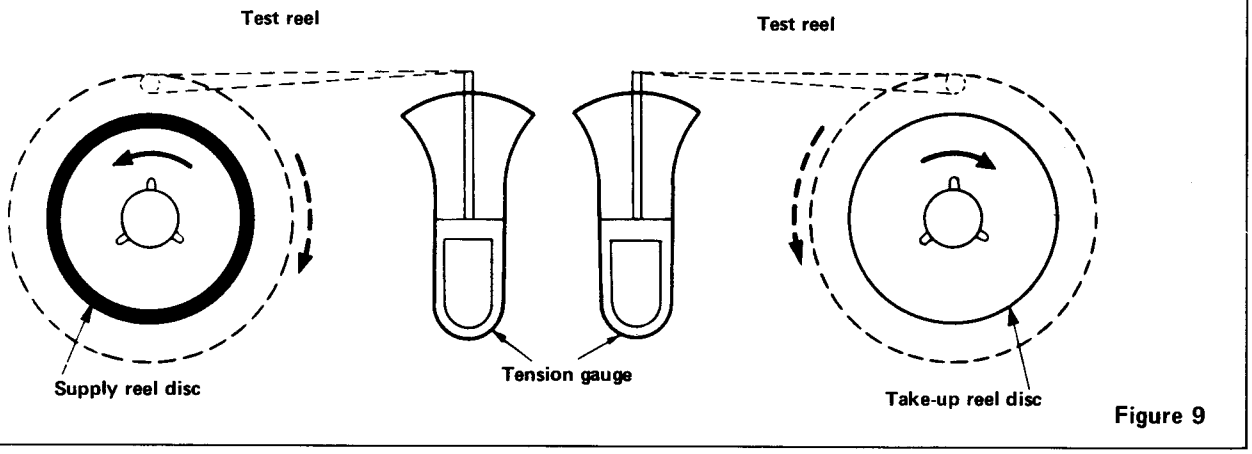


Figure 9

The take-up torque can be calculated from the formula: radius of the test reel (cm) x reading of the tension gauge (g).

EXPLANATIONS OF CIRCUITRY

■ RUNNING INDICATOR/BATTERY CONDITION INDICATOR

This indicator is designed using LED (Light Emitting Diode). The LED flickers when the tape is running and you can find the battery condition. When the battery voltage is decreased lower than as specified, LED stops to flicker. In this case, it is needed to replace the battery.

What is LED (Light Emitting Diode)?

Outline:

LED is a solid-luminescent element manufactured using a single crystal of gallium-arsenic-phosphorus (GaAsP), assuring the maximum efficiency. It is lit red by giving the diode forward current.

Features:

(1) Less power consumption, but higher brightness
(2) Possible to work on lower voltage and current
(3) Faster response
(4) Long service life and high reliability assured with minimum aging damage.
(5) Compact and sturdy design with the excellent resistance to mechanical vibration

How to flicker:

In the figure hereof, there are two amplifiers in which an input terminal of one amplifier is connected with an output terminal of other amplifier and an output terminal of one amplifier is connected with an input terminal of other amplifier, thus causing an oscillation. The output of this oscillation is connected with LED to be lit (flickering).

That is to say, when power is supplied, current runs in both the transistors Q7 and Q8 at a time. There arises an hFE difference between Q7 and Q8 and so one transistor is turned on and another is turned off. Supposed that hFE of Q8 is larger than that of Q7, the LED flickers repeating the following cycle.

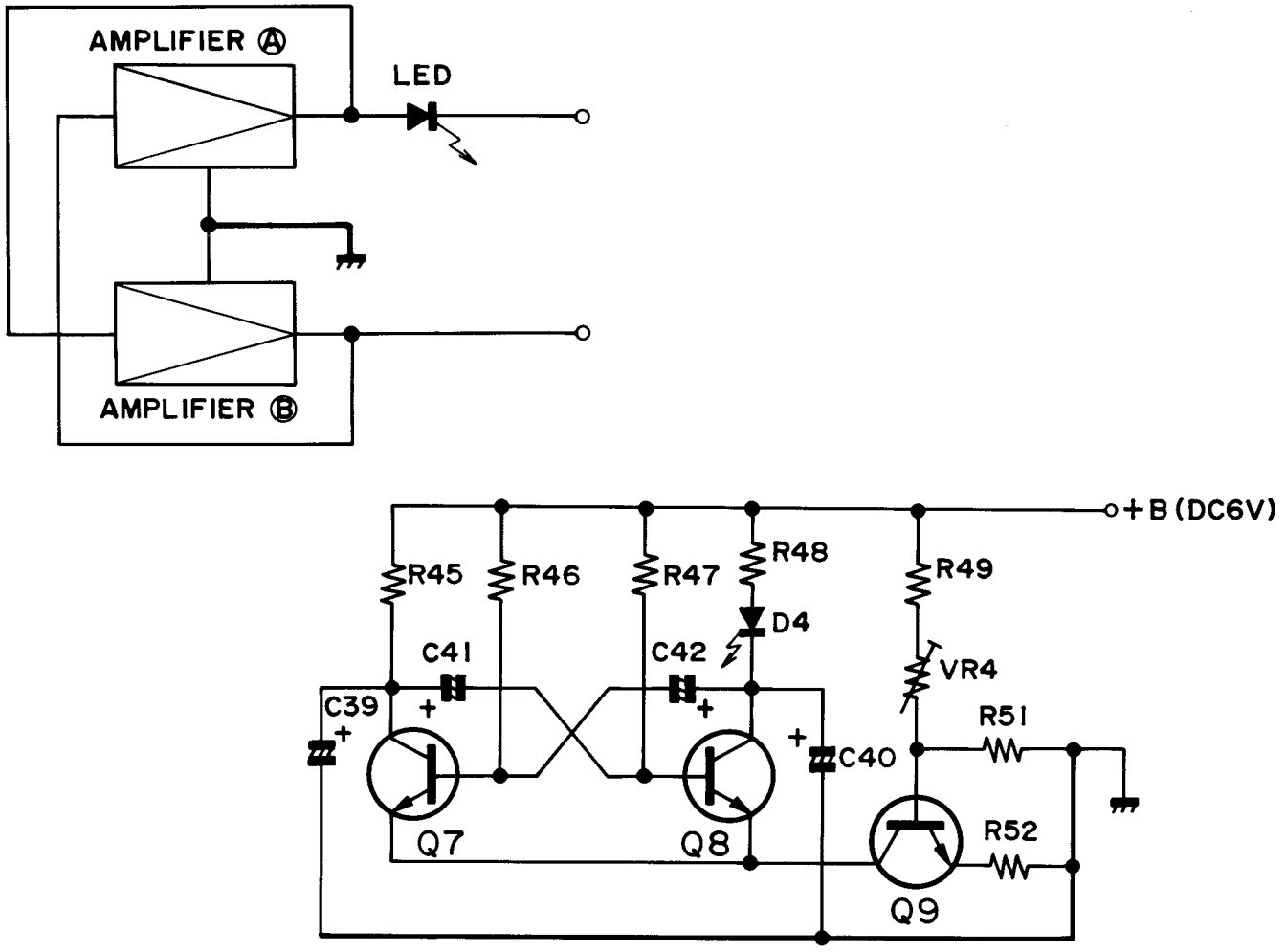
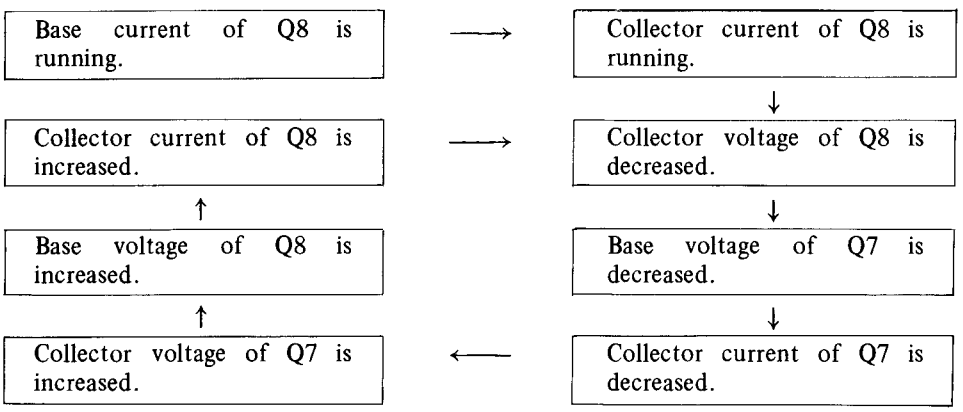


Figure 10


Base current of Q8 is running.
Collector current of Q8 is running.
Collector current of Q8 is increased.
Collector voltage of Q8 is decreased.
Base voltage of Q8 is increased.
Base voltage of Q7 is decreased.
Collector voltage of Q7 is increased.
Collector current of Q7 is decreased.

■ TUNING INDICATOR

The tuning indicator lights up when radio broadcasts (both MW and FM) are tuned and its lighting intensity is maximum at the best runing point. At FM reception, IF signals are taken out of the secondary side of transformer (T106) through C135 and converted into DC by the detection of diode (D107). At MW reception, MW detected output from the D106 is also converted into DC to be supplied to LED drive circuit (Q104 and Q105), thus the LED being turned on or off.

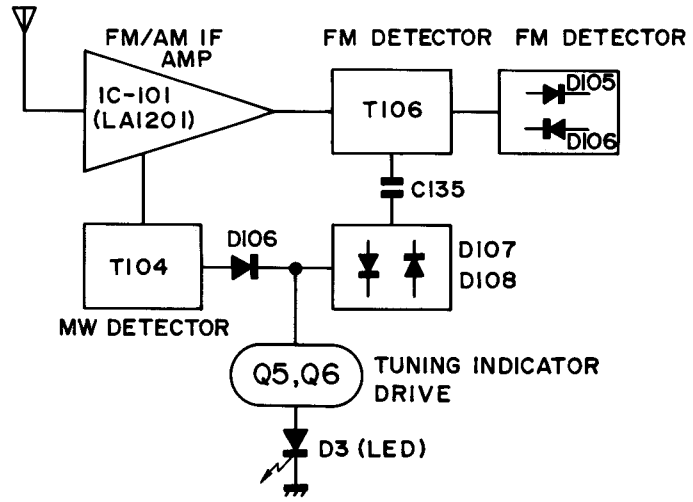


Figure 11

ELECTRICAL MEASUREMENT

■ PREPARATION

(1) Before adjusting and measuring make following preparations:
  (a) Clean following parts with soft cloth soaked with alcohol:
  Playback head, erase head, capstan, pinch roller, belt and idler.
  (b) Demagnetize the record/playback head with a head demagnetizer.
  (c) As the unit is designed to be operated on DC 6V, make sure that the power source is DC 6V when adjustments are to be made.

■ RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT (Refer to Figure 12)

(1) Set the VOLUME control to its mechanical center position.
(2) Playback a recorded 6.3kHz test tape (MTT-113).
(3) Connect a dummy resistor (1/4 watts 100K ohms ±5%) to the earphone jack.
(4) Connect a valve voltmeter and oscilloscope across the dummy resistor as shown in Figure 12-B.
(5) Adjust the head's angle with the head adjusting screw so that the reading of the valve voltmeter becomes maximum.
(6) When adjusting the head's angle make sure that a sine wave is displayed on the oscilloscope.
If the waveform is distorted correct measurement cannot be done. Adjust VOLUME control so that a correct waveform is projected.
(7) Apply a drop of lacquer on the screw when adjustment is completed.

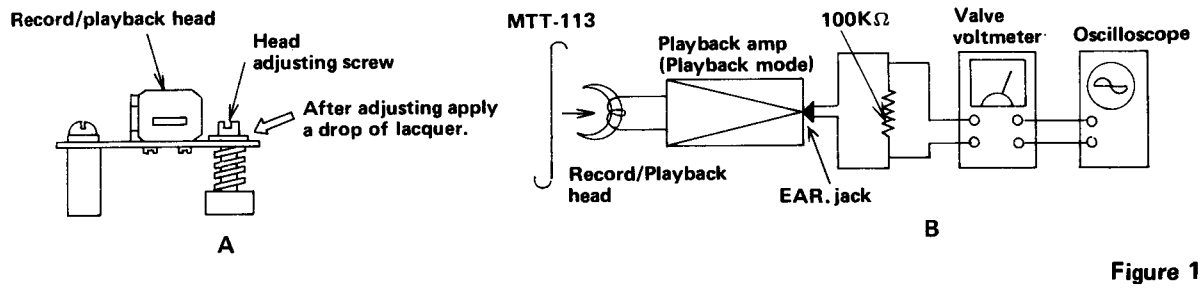


Figure 12

■ **TAPE SPEED ADJUSTMENT** (Refer to Figur 13)

(1) Set the VOLUME control to the position at which the frequency counter operates best.

(2) Playback a recorded 3kHz test tape (MTT-111).

(3) Connect a dummy resistor (1/4 watts 100K ohms ±5%) to the earphone jack. The tape speed is normal if the reading on the frequency counter is 3kHz ±3% at both the starting and end portions of the tape.

(4) When the reading is out of the above-specified range make sure that belt is clean, pressing force of the pinch roller is correct and thrust of the flywheel is within its allowance or not. When the reading is still out of the range replace the motor pulley or motor.

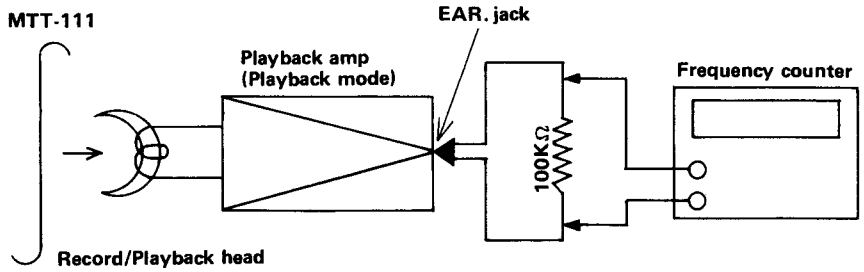


Figure 13

■ **RUNNING INDICATOR LIGHTING LEVEL ADJUSTMENT** (Refer to Figure 14)

(1) Connect DC voltmeter as illustrated in Figure 14.

(2) Gradually dropping a DC power supply, and when the value on DC voltmeter indicates 4.5V, adjust the variable resistor (VR4) so that running indicator stops to light.

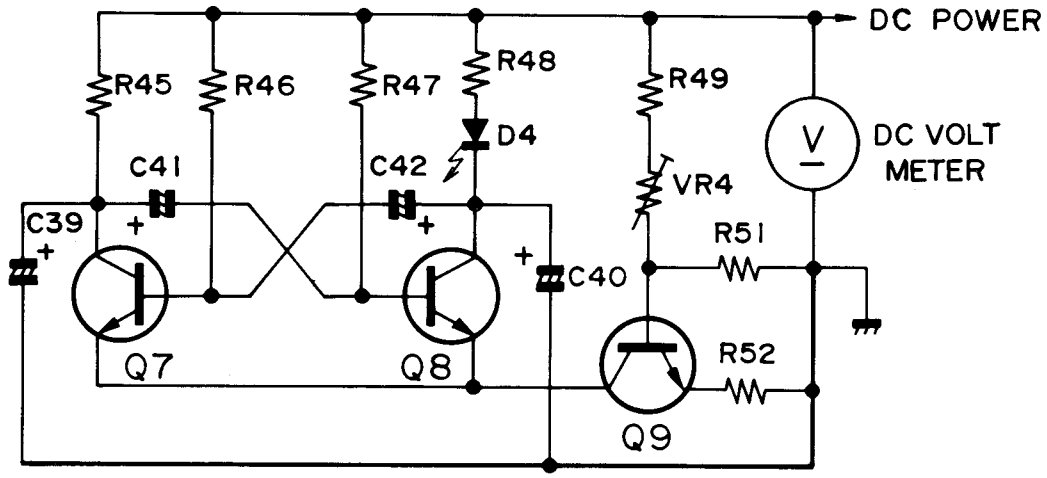


Figure 14

GENERAL ALIGNMENT INSTRUCTIONS

Should it become necessary at any time to check the alignment of this receiver, proceed as follows ;

(1) Connect an output meter across the speaker voice coil lugs.

(2) Set the volume control at maximum.

(3) Attenuate the signals from the generator enough to swing the most sensitive range of the output meter.

(4) Use a non-metallic alignment tool.

(5) Repeat adjustments to insure good results.

MW ALIGNMENT CHART

* Set the Band Selector Switch at "MW" position.

STEP	TEST STAGE	SIGNAL GENERATOR		RECEIVER		ADJUSTMENT
		CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS	
1	IF	Connect signal generator through a 10K ohm dummy to the antenna tuning capacitor. Ground lead to the receiver chassis.	Exactly 455 kHz (400 Hz, 30%, AM modulated.)	High end of dial. (minimum capacity)	Adjust for maximum output on speaker voice coil lugs.	T102, T103
2	Band Coverage	Use radiation loop. Loop of several turns of wire, or place generator lead close to receiver for adequate signal pickup. Connect generator output to one end of this wire.	Exactly 510 kHz (400Hz, 30%, AM modulated.)	Low end of dial. (maximum (capacity)	Same as step 1	Adjust the MW oscillator coil L106.
3	Band Coverage	Same as step 2	Exactly 1650 kHz (400 Hz, 30%, AM modulated.)	High end of dial. (minimum capacity)	Same as step 1	Adjust the MW oscillator trimmer CT4.
4	Tracking	Same as step 2	Exactly 600 kHz (400 Hz, 30%, AM modulated.)	600 kHz	Same as step 1	Adjust the MW antenna coil L105. (See NOTE A.)
5	Tracking	Same as step 2	Exactly 1400 kHz (400 Hz, 30%, AM modulated.)	1400 kHz	Same as step 1	Adjust the MW antenna trimmer CT3. (See NOTE A.)
6	Repeat steps 2 and 5 until no further improvement can be made.					

NOTE A

Check the alignment of the receiver antenna coil by bringing a piece of ferrite (such as a coil slug) near the antenna loop stick, then a piece of brass. If ferrite increases output, loop requires more inductance. If brass increases output, loop requires less inductance. Change loop inductance by sliding the bobbin toward the center of ferrite core to increase inductance, or away to decrease inductance.

THE INSTRUCTION OF FREQUENCY ADJUSTMENT

In order to comply with FTZ rule : Nr. 358 S757, please fix the low end of dial frequency (87.5 MHz) and the high end of dial frequency (107.9 MHz) on FM band, by adjusting oscillation coil (L104) and oscillation trimmer (CT2), respectively, as illustrated in Figure 17.

FM ALIGNMENT CHART

* Set the Band Selector switch at "FM" position.

STEP	TEST STAGE	SIGNAL GENERATOR		RECEIVER		ADJUSTMENT
		CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS	
1	IF	Connect signal generator through a 5pF capacitor to test point [TP104]. Connect generator ground lead to the receiver chassis.	Exactly 10.7 MHz. (400 Hz, 30%, FM modulated)	Low end of dial. (maximum capacity)	Connect VTVM between test point [TP105] and chassis ground.	Detune T105, T106. Tune T101 for maximum indication.
2	IF	Same as step 1.	Exactly 10.7 MHz. (Unmodulated)	Same as step 1.	See NOTE B.	See NOTE B.
3	Band Coverage	Connect signal generator through a dummy, including output impedance of signal generator to the FM antenna. (Refer to Figure 15) Ground lead of generator connected to the receiver chassis.	Exactly 88 MHz. (400 Hz, 30%, FM modulated)	Low end of dial. (maximum capacity)	Adjust for maximum output speaker voice coil lugs.	Adjust the FM oscillator coil L104.
4	Band Coverage	Same as step 3.	Exactly 106 MHz. (400 HZ, 30%, FM modulated)	High end of dial. (minimum capacity)	Same as step 3.	Adjust the FM oscillator trimmer. CT2.
5	Tracking	Same as step 3.	Exactly 90 MHz. (400 Hz, 30%, FM modulated)	90 MHz.	Same as step 3.	Adjust the FM RF coil L102.
6	Tracking	Same as step 3.	Exactly 104 MHz. (400 Hz, 30%, FM modulated)	104 MHz.	Same as step 3.	Adjust the FM RF trimmer CT1.
7	Repeat steps 3, 4, 5 and 6 until no further improvement can be made.					

NOTE B

(1) Connect VTVM (0.1 volts range DC scale) between test point [TP105] and chassis ground.

(2) Adjust T106 for 0 volt.

(3) Change signal generator frequency 10.7 MHz + 100 kHz and −100 kHz approximately.

(4) Adjust T105 for balanced peaks. Peak separation should be approximately 200 kHz.

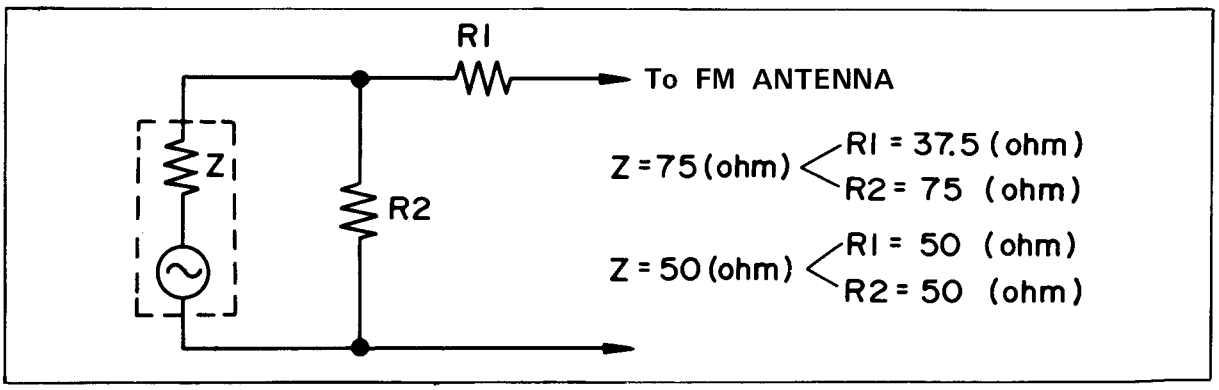


Figure 15 FM DUMMY

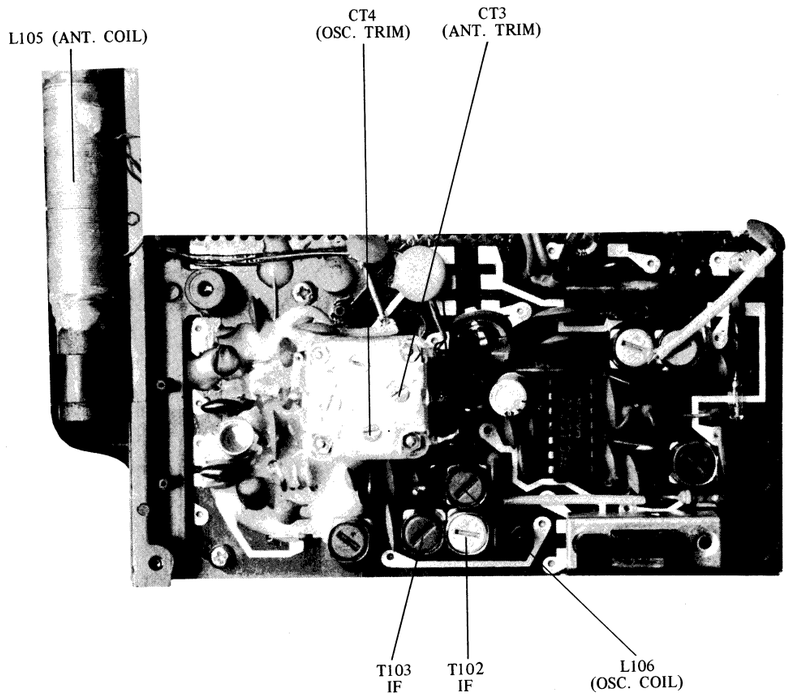


Figure 16 MW ALIGNMENT POINT

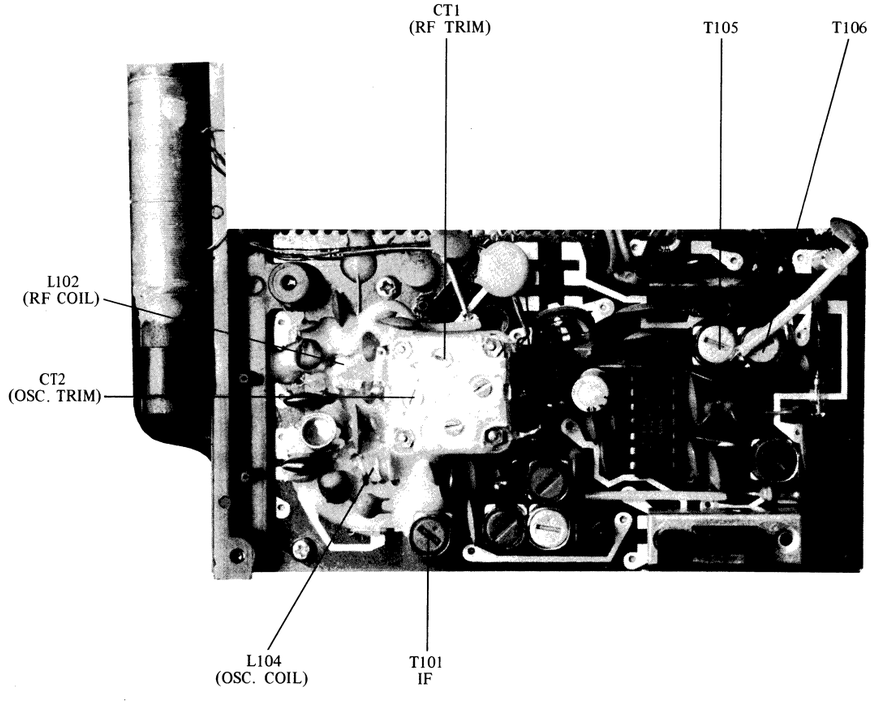


Figure 17 FM ALIGNMENT POINT

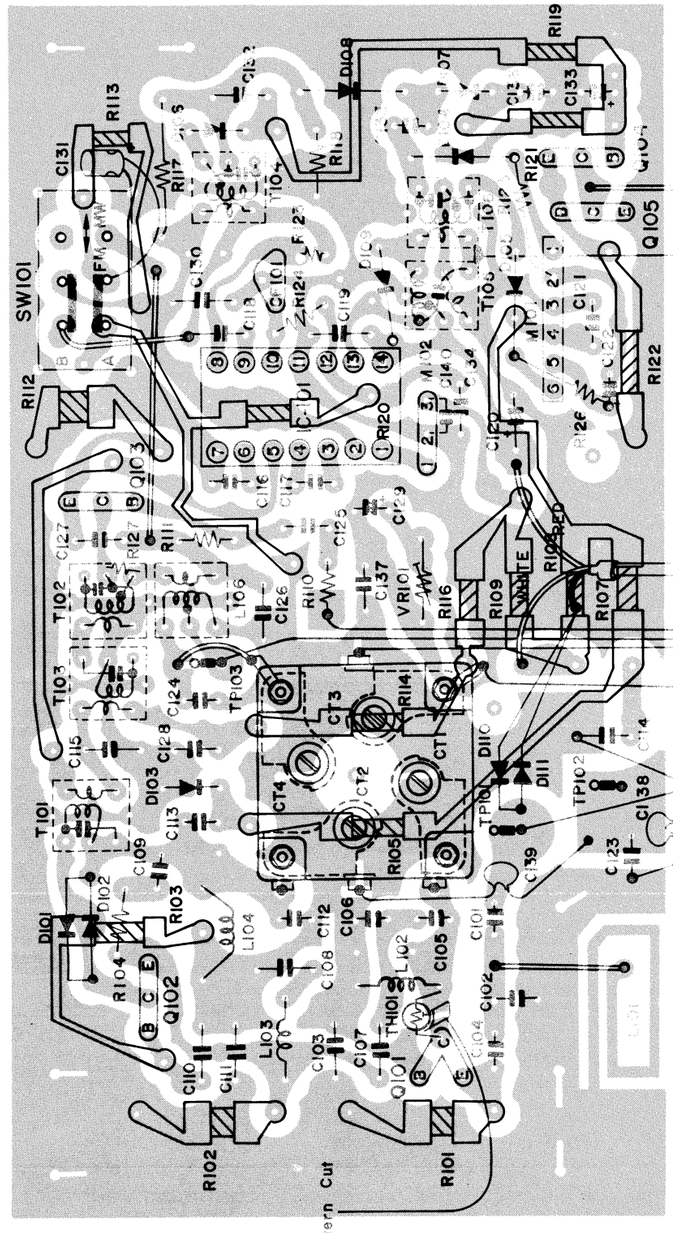


Figure 18 WIRING SIDE OF TUNER P.W.BOARD

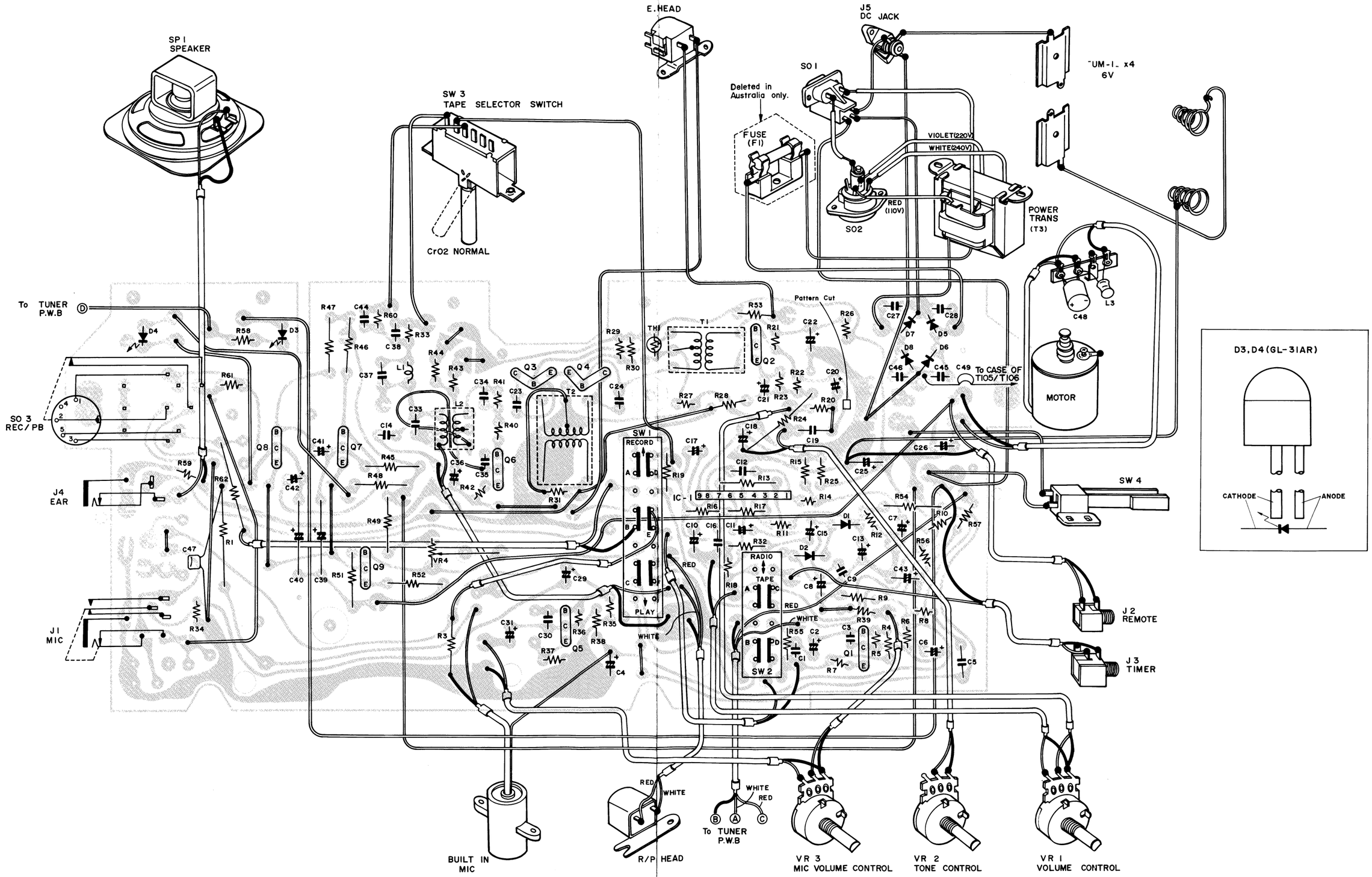
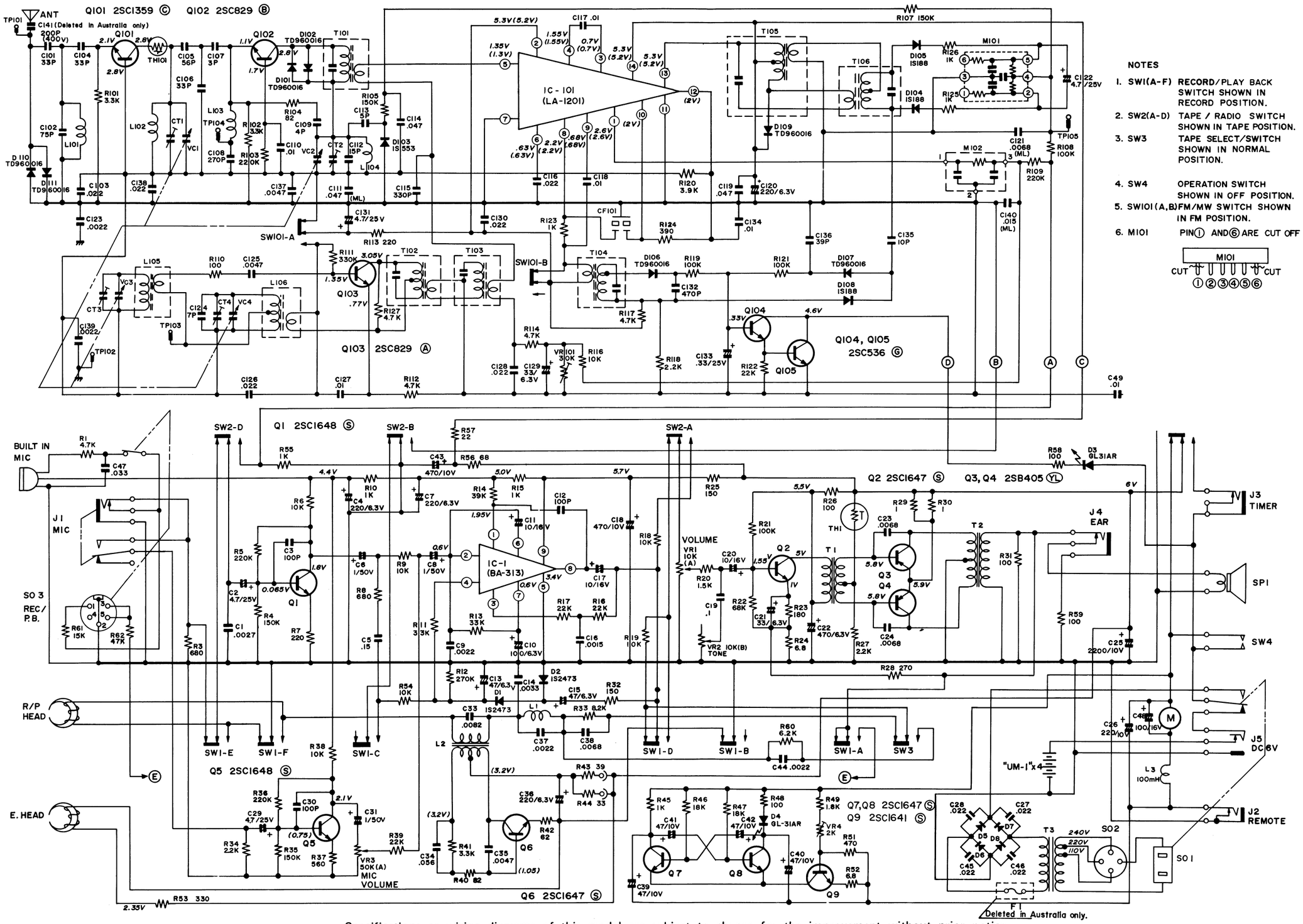


Figure 19 WIRING SIDE OF AUDIO P.W.BOARD



Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice.

Figure 20 SCHEMATIC DIAGRAM

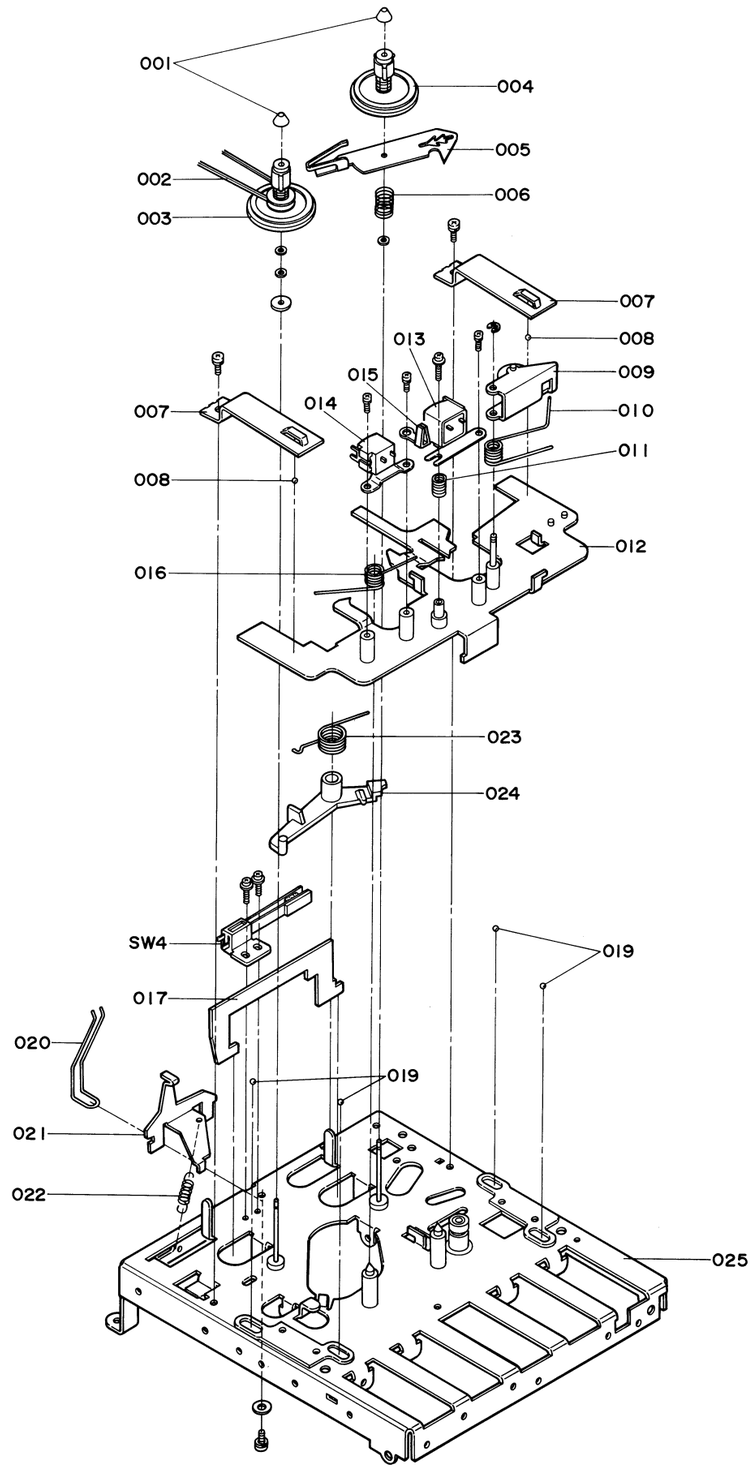


Figure 21 MECHANISM EXPLODED TOP VIEW

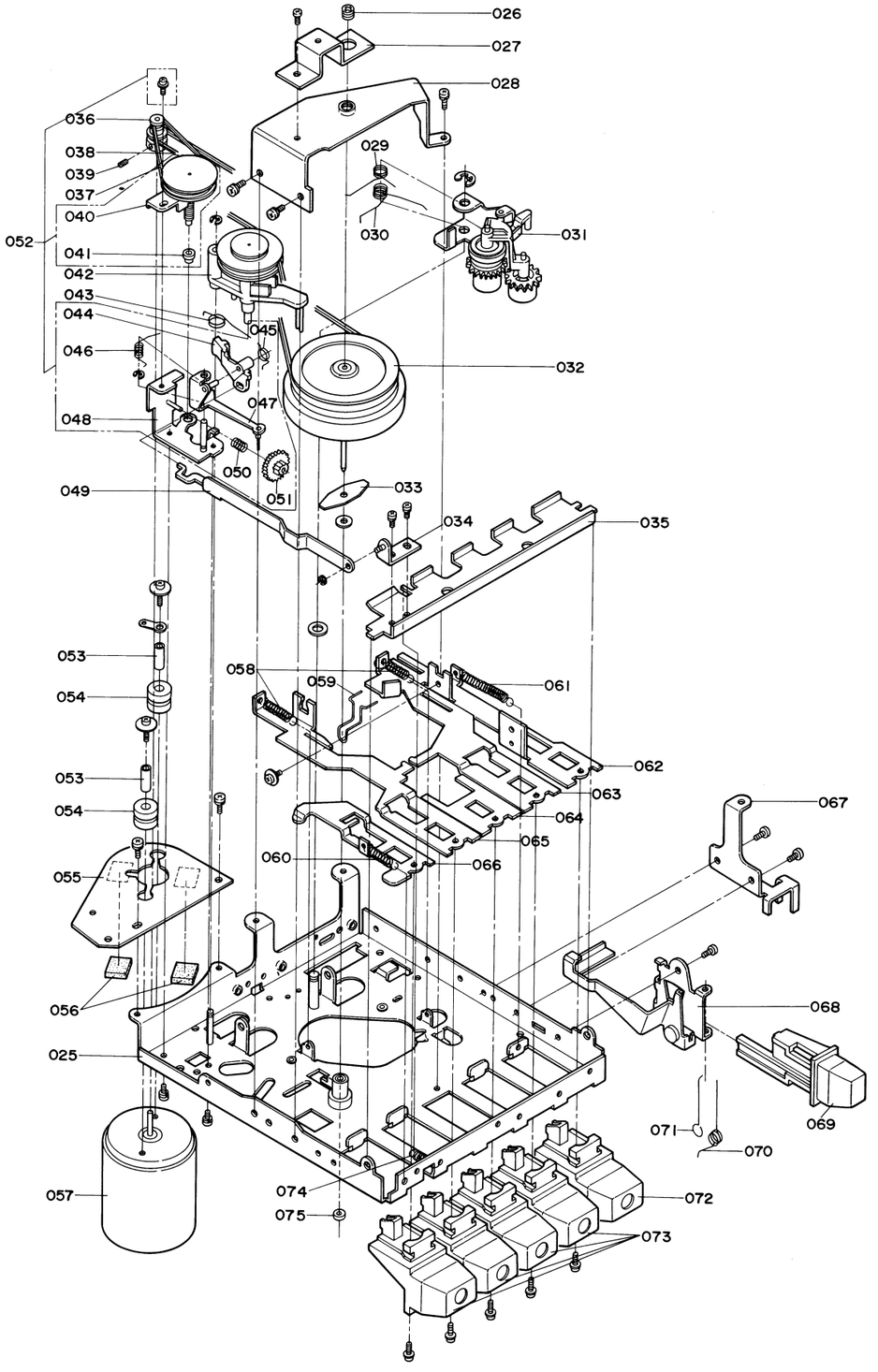


Figure 22 MECHANISM EXPLODED BOTTOM VIEW

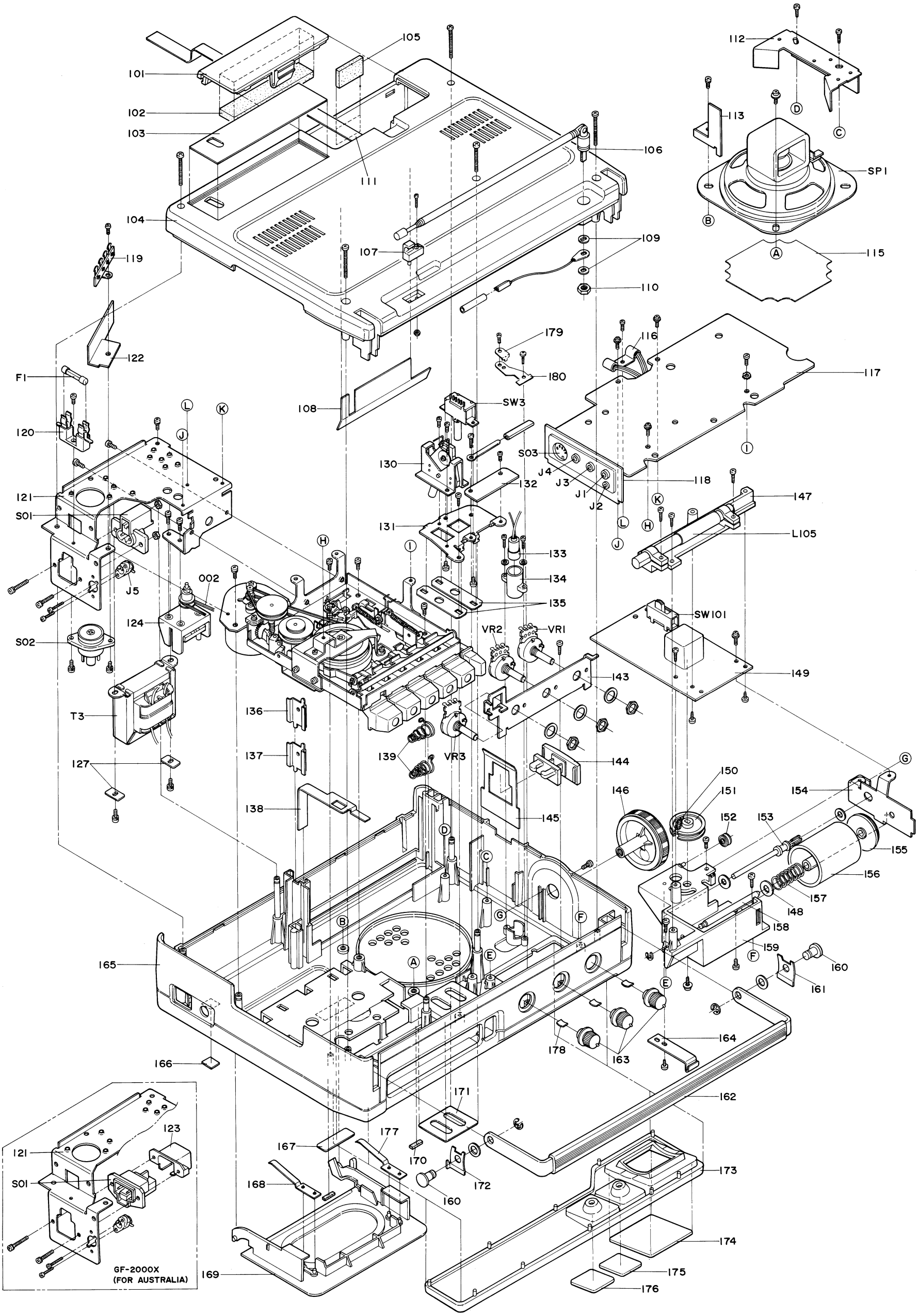


Figure 23 CABINET EXPLODED VIEW

IC1 (BA313)

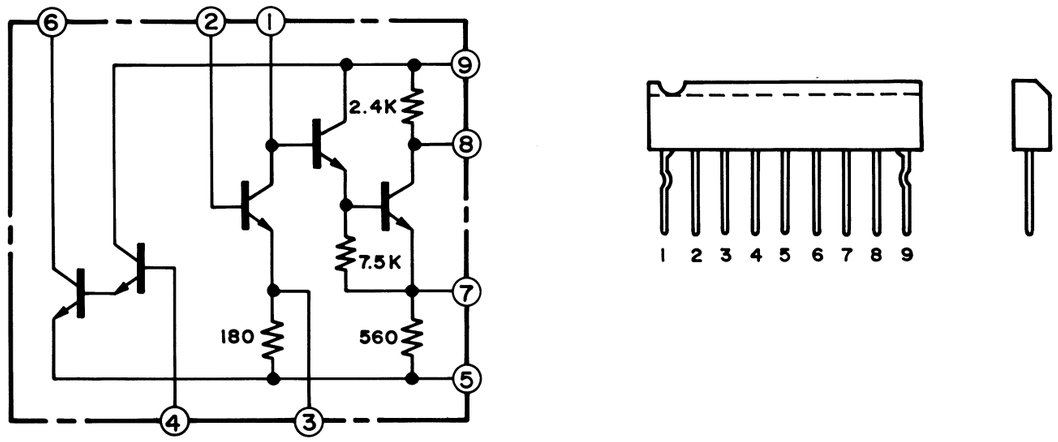
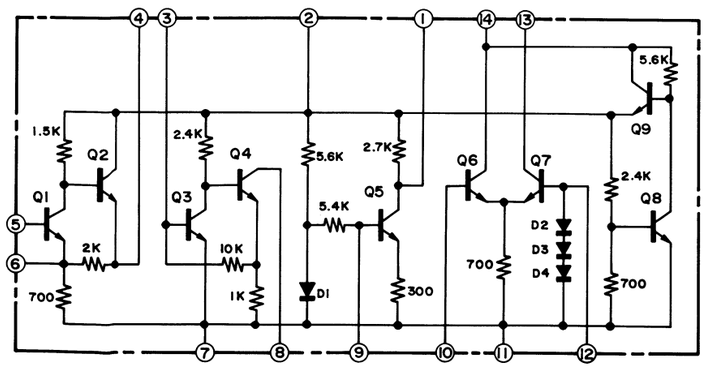


Figure 24 EQUIVALENT CIRCUIT OF IC-1 (BA313)

IC101 (LA1201)



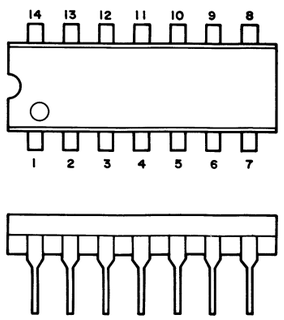


Figure 25 EQUIVALENT CIRCUIT OF IC-101 (LA1201)

SHARP

PARTS LIST

MODEL
GF-2000H
GF-2000X

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

TRANSISTORS

REF. NO.	PART NO.	DESCRIPTION	CODE
Q1	2SC1648(S)	1st Audio Amp.	AE
Q2	2SC1647(S)	Audio Driver	AE
Q3, Q4	2SB405(YL)	Audio Output	AF
Q5	2SC1648(S)	Mic Amp.	AE
Q6	2SC1647(S)	Bias Oscillation	AE
Q7, Q8	2SC1647(S)	Running Indicator Switching	AE
Q9	2SC1641(S)	Battery Indicator Lighting Level	AE
Q101	2SC1359(C)	FM RF Amp.	AF
Q102	2SC829(B)	FM Convertor	AE
Q103	2SC829(A)	MW Convertor	AE
Q104, Q105	2SC536(G)	Tuning Indicator Amp.	AE

IC (Integrated Circuit)

IC-1	BA313	Audio Amp.	AL
IC-101	LA1201	FM/MW IF Amp.	AQ

DIODES

D1	1S2473	ALC	AC
D2	1S2473	ALC	AC
D3	GL-31AR	LED, Tuning Indicator	AF
D4	GL-31AR	LED, Running/Battery Indicator	AF
D5, D6, D7, D8	1N4001	Power Rectifier	AD
D101, D102	TD960016	FM Overload	AC
D103	1S553	FM AFC	AE
D104, D105	1S188	FM Detector	AC
D106	TD960016	Rectifier, MW Tuning Indicator	AC
D107	TD960016	Rectifier, FM Tuning Indicator	AC
D108	1S188	Rectifier, FM Tuning Indicator	AC
D109	TD960016	FM Limiter	AC
D110, D111	TD960016	Static Protector	AC

THERMISTOR

REF. NO.	PART NO.	DESCRIPTION	CODE
TH1	KGE41005	Temperature Compensation	AC
TH101	KGE46267	Temperature Compensation	AB

CONTROLS

VR1	KGE20271	Volume, 10K ohm Pot., A Type	AG
VR2	KGE20356	Tone, 10K ohm Pot., B Type	AG
VR3	KGE20347	Mic Volume 50K ohm Pot, A Type	AG
VR4	KGE20240	Running Indicator Lighting Level Adjusting, 2K ohm Pot.	AD
VR101	KGE20269	IC Sensitivity Adjusting 30K ohm Pot.	AD

COILS

L1	KGE40897	Bias Trap	AG
L2	KGE40770	Bias Oscillation	AH
L3	KGE40134	Motor Noise Filter	AE
L101	Not Available	FM Antenna	–
L102	KGE40723	FM RF	AB
L103	KGE40755	Emitter Choke	AB
L104	KGE40722	FM Oscillator	AB
L105	KGE40872	MW Antenna	AH
L106	KGE40699	MW Oscillation	AE

TRANSFORMERS

T1	KGE40423	Audio Driver	AH
T2	KGE40418	Audio Output	AH
T3	KGE40930	Power	AW
T101	KGE40543	1st FM IF	AF
T102	KGE40933	1st MW IF	AE
T103	KGE40792	1st MW IF	AE
T104	KGE40830	Tuning Indicator Amp. IF	AE
T105	KGE40541	FM Discriminator	AF
T106	KGE40542	FM Discriminator	AF

CERAMIC FILTER

CF101	KGE40910	10.7MHz	AG

PACKAGED CIRCUITS

REF. NO.	PART NO.	DESCRIPTION	CODE
M101	KGE30053	Capristor	AF
M102	KGE30047	Capristor	AC

CAPACITORS

REF. NO.	PART NO.	DESCRIPTION	CODE
VC1, VC2, VC3, VC4, CT1, CT2, CT3, CT4	KGE30043	Variable Capacitor, Tuning with Trimmers CT1: FM RF Trimmer CT2: FM Oscillator Trimmer CT3: MW Antenna Trimmer CT4: MW Oscillator Trimmer	AR
C1	KGE11253	.0027MFD, 50V, ±10%, Mylar	AC
C2	KGE34067	4.7MFD, 25V, Electrolytic	AC
C3	KGE32920	100PF, 50V, ±10%, Mica	AB
C4	KGE34042	220MFD, 6.3V, Electrolytic	AD
C5	KGE31152	.15MFD, 50V, ±10%, Mylar	AE
C6	KGE34078	1MFD, 50V, Electrolytic	AC
C7	KGE34042	220MFD, 6.3V, Electrolytic	AD
C8	KGE34078	1MFD, 50V, Electrolytic	AC
C9	KGE10125	.0022MFD, 50V, ±10%, Mylar	AC
C10	KGE34041	100MFD, 6.3V, Electrolytic	AD
C11	KGE34057	10MFD, 16V, Electrolytic	AC
C12	KGE32920	100PF, 50V, ±10%, Mica	AB
C13	KGE34040	47MFD, 6.3V, Electrolytic	AC
C14	KGE5071	.0033MFD, 50V, ±10%, Mylar	AC
C15	KGE34040	47MFD, 6.3V, Electrolytic	AC
C16	KGE2189	.0015MFD, 50V, ±10%, Mylar	AC
C17	KGE34057	10MFD, 16V, Electrolytic	AC
C18	KGE34054	470MFD, 10V, Electrolytic	AE
C19	KGE31148	.1MFD, 50V, ±10%, Mylar	AD
C20	KGE34057	10MFD, 16V, Electrolytic	AC
C21	KGE34039	33MFD, 6.3V, Electrolytic	AC
C22	KGE34044	470MFD, 6.3V, Electrolytic	AD
C23, C24	KGE3241	.0068MFD, 50V, ±10%, Mylar	AC
C25	KGE34056	2200MFD, 10V, Electrolytic	AG
C26	KGE34052	220MFD, 10V, Electrolytic	AD
C27, C28	KGE33564	.022MFD, 50V, +80 −20%, Ceramic	AB
C29	KGE34067	4.7MFD, 25V, Electrolytic	AC
C30	KGE32920	100PF, 50V, ±10%, Mica	AB
C31	KGE34078	1MFD, 50V, Electrolytic	AC
C33	KGE6224	.0082MFD, 50V, ±10%, Mylar	AC
C34	KGE31142	.056MFD, 50V, ±10%, Mylar	AC
C35	KGE10559	.0047MFD, 50V, ±10%, Mylar	AC
C36	KGE34042	220MFD, 6.3V, Electrolytic	AD
C37	KGE10125	.0022MFD, 50V, ±10%, Mylar	AC
C38	KGE3241	.0068MFD, 50V, ±10%, Mylar	AC
C39, C40	KGE33612	47MFD, 10V, Electrolytic	AD
C41, C42	KGE34924	47MFD, 10V, ±20%, Electrolytic	AC
C43	KGE34054	470MFD, 10V, Electrolytic	AE
C44	KGE10125	.0022MFD, 50V, ±10%, Mylar	AC
C45, C46	KGE33564	.022MFD, 50V, +80 −20%, Ceramic	AB
C47	KGE6264	.033MFD, 50V, ±10%, Mylar	AC
C48	KGE34061	100MFD, 16V, Electrolytic	AD
C49	KGE33563	.01MFD, 50V, Ceramic	AB
C101	KGE33454	33PF, 50V, ±10%, Ceramic	AB
C102	KGE33398	75PF, 50V, ±10%, Ceramic	AB
C103	KGE3224	.022MFD, 50V, Mylar	AC
C104	KGE33454	33PF, 50V, ±10%, Ceramic	AB
C105	KGE33395	56PF, 50V, ±5%, Ceramic	AB
C106	KGE33389	33PF, 50V, ±5%, Ceramic	AB
C107	KGE33370	3PF, 50V, ±.25PF, Ceramic	AB
C108	KGE33476	270PF, 50V, ±10%, Ceramic	AB
C109	KGE33371	4PF, 50V, ±.25PF Ceramic	AB
C110	KGE33563	.01MFD, 50V, Ceramic	AB
C111	KGE10577	.047MFD, 50V, Mylar	AC
C112	KGE34969	15PF, 50V, ±5%, Ceramic	AC
C113	KGE33372	5PF, 50V, ±.25PF, Ceramic	AB
C114	KGE33565	.047MFD, 50V, Ceramic	AB
C115	KGE33478	330PF, 50V, ±10%, Ceramic	AB
C116	KGE33564	.022MFD, 50V, Ceramic	AB
C117, C118	KGE33563	.01MFD, 50V, Ceramic	AB
C119	KGE33565	.047MFD, 50V, Ceramic	AB
C120	KGE34042	220MFD, 6.3V, Electrolytic	AD
C121	KGE3241	.0068MFD, 50V, ±10%, Mylar	AC
C122	KGE34067	4.7MFD, 25V, Electrolytic	AC
C123	KGE33561	.0022MFD, 50V, Ceramic	AB
C124	KGE33439	7PF, 50V, ±.5PF, Ceramic	AB
C125	KGE33562	.0047MFD, 50V, Ceramic	AB
C126	KGE33564	.022MFD, 50V, Ceramic	AB
C127	KGE1181	.01MFD, 50V, ±10%, Mylar	AC
C128	KGE33564	.022MFD, 50V, Ceramic	AB
C129	KGE34039	33MFD, 6.3V, Electrolytic	AC
C130	KGE33564	.022MFD, 50V, Ceramic	AB
C131	KGE34067	4.7MFD, 25V, Electrolytic	AC
C132	KGE33482	470PF, 50V, ±10%, Ceramic	AB
C133	KGE33709	.33MFD, 25V, Aluminum Electrolytic	AD
C134	KGE33563	.01MFD, 50V, Ceramic	AB
C135	KGE33442	10PF, 50V, ±.5PF, Ceramic	AB
C136	KGE33456	39PF, 50V, ±10%, Ceramic	AB
C137	KGE33562	.0047MFD, 50V, Ceramic	AB
C138	KGE33564	.022MFD, 50V, Ceramic	AB
C139	KGE33561	.0022MFD, 50V, Ceramic	AB
C140	KGE3224	.015MFD, 50V, ±10%, Mylar	AC
C141	KGE30075	200PF, 400V AC, Ceramic (Deleted in Australia only)	AC

MODEL
GF-2000H
GF-2000X

SHARP

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE

RESISTORS

(Unless otherwise specified resistors are 1/4W, ±5%, Carbon type.)

R1	KGE10567	4.7K ohm	AA
R3	KGE5534	680 ohm	AA
R4	KGE10352	150K ohm	AA
R5	KGE3229	220K ohm	AA
R6	KGE6259	10K ohm	AA
R7	KGE10792	220 ohm	AA
R8	KGE10940	680 ohm	AA
R9	KGE6259	10K ohm	AA
R10	KGE11258	1K ohm	AA
R11	KGE6265	33K ohm	AA
R12	KGE21131	270K ohm	AA
R13	KGE21789	33K ohm	AA
R14	KGE11262	39K ohm	AA
R15	KGE11258	1K ohm	AA
R16, R17	KGE5068	22K ohm	AA
R18, R19	KGE6259	10K ohm	AA
R20	KGE11260	1.5K ohm	AA
R21	KGE5070	100K ohm	AA
R22	KGE10598	68K ohm	AA
R23	KGE10338	180 ohm	AA
R24	KGE21021	6.8 ohm	AA
R25	KGE10141	150 ohm	AA
R26	KGE21049	100 ohm	AA
R27	KGE5066	2.2K ohm	AA
R28	KGE10142	270 ohm	AA
R29, R30	KGE5061	1 ohm	AA
R31	KGE21049	100 ohm	AA
R32	KGE10141	150 ohm	AA
R33	KGE6210	8.2K ohm	AA
R34	KGE5066	2.2K ohm	AA
R35	KGE10352	150K ohm	AA
R36	KGE3229	220K ohm	AA
R37	KGE21067	560 ohm	AA
R38	KGE6259	10K ohm	AA
R39	KGE5068	22K ohm	AA
R40	KGE6205	82 ohm	AA
R41	KGE10575	3.3K ohm	AA
R42	KGE21044	62 ohm	AA
R43	KGE21039	39 ohm	AA
R44	KGE10791	33 ohm	AA
R45	KGE21753	1K ohm	AA
R46, R47	KGE21783	18K ohm	AA
R48	KGE21729	100 ohm	AA
R49	KGE10157	1.8K ohm	AA
R51	KGE10155	470 ohm	AA
R52	KGE21701	6.8 ohm	AA
R53	KGE3226	330 ohm	AA
R54	KGE6259	10K ohm	AA
R55	KGE11258	1K ohm	AA
R56	KGE21045	68 ohm	AA
R57	KGE21033	22 ohm	AA
R58	KGE21049	100 ohm	AA
R59	KGE21049	100 ohm	AA
R60	KGE21092	6.2K ohm	AA
R61	KGE2532	15K ohm	AA
R62	KGE21793	47K ohm	AA
R104	KGE6205	82 ohm	AA
R110	KGE21050	100 ohm	AA
R111	KGE21133	330K ohm	AA
R117	KGE10567	4.7K ohm	AA
R118	KGE5066	2.2K ohm	AA
R123	KGE11258	1K ohm	AA
R124	KGE21063	390 ohm	AA
R125, R126	KGE23939	1K ohm, 1/8W, ±10%, Carbon	AB
R127	KGE23955	4.7K ohm, 1/8W, ±5%, Carbon	AB

MECHANICAL PARTS

001	PBE11144	Cap, Turntable	AA
002	KGE18532	Belt, Tape Counter	AE
003	KGE08647	Turntable, Supply	AF
004	KGE08646	Turntable, Take-up	AF
005	KGE14426	Cam lever, Take-up Turntable	AE
006	KGE14288	Spring, Take-up Turntable	AB
007	KGE13710	Holder, Steel Ball	AB
008	54012	Steel Ball, 2.5ϕ	AA
009	KGE07368	Pinch Roller Assembly	AG
010	KGE13755	Spring, Pinch Roller Lever	AC
011	KGE3354	Spring, R/P Head	AB
012	KGD08702	Sub-Chassis	AK
013	KGE40899	Head, Record/Playback	AT
014	KGE40784	Head, Erase	AK
015	KGE3505	Holder, Wire	AB
016	KGE13756	Spring, Sub-Chassis Return	AB
017	KGE14891	Lever, Brake	AB
019	54004	Steel Ball, 2ϕ	AA
020	KGE14583	Spring, Cassette	AC
021	KGE13751	Lever, Erase Proof	AC
022	KGE13757	Spring, Erase Proof Lever	AB
023	KGE14187	Spring, Switch Lever	AB
024	KGE14050	Lever, Switch	AC
025	KGC07604	Chassis, Mechanism	AS
026	KGE14112	Screw, Flywheel Thrust	AB
027	KGE95033	Bracket, P.W. Board	AC
028	KGE13723	Bracket, Flywheel	AD
029	KGE13754	Spring, Idler Lever	AB
030	KGE14450	Spring, Idler Lever	AB
031	KGD08335	Idler Lever Assembly	AR
032	KGE07365	Flywheel with Capstan	AP
033	KGE14343	Plate Spring, Flywheel Thrust	AB
034	KGE07588	Plate, Auto Stop Connection Lever	AD
035	KGE13727	Stopper, Button Lever	AD
036	KGE14151	Motor Pulley, Medium Diameter (5.3ϕ)	AG
	KGE14152	Motor Pulley, Longer Diameter (5.4ϕ)	AG
	KGE14153	Motor Pulley, Shorter Diameter (5.2ϕ)	AG
037	KGE14142	Belt, Auto Stop Device	AD
038	KGE13737	Belt, Capstan Drive	AF
039	17009	Screw, Motor Pulley	AA
042	KGE07581	Slip Roller Assembly	AM

REF. NO.	PART NO.	DESCRIPTION	CODE
043	KGE13753	Spring, Slip Roller Lever	AB
049	KGE14107	Lever, Auto Stop Connection	AD
052	KGD07601	Auto Stop Device Assembly	AW
053	KGE10542	Collar, Motor Cushion	AB
054	KGE10637	Rubber, Motor Cushion	AB
055	KGE95022	Bracket, Motor	AC
056	KGE10640	Cushion, Motor	AA
057	KGE40946	Motor	AZ
058	KGE14449	Spring, FF/REW Button Lever	AB
059	KGE95910	Spring, Record/Playback Switch	AD
060	KGE13761	Spring, Stop Button Lever	AB
061	KGE13760	Spring, Record Connecting Lever	AB
062	KGE14150	Lever, Record Connecting	AE
063	KGE13708	Lever, Rewind Button	AE
064	KGE13725	Lever, Play Button	AB
065	KGE13707	Lever FF Button	AD
066	KGE13743	Lever, Brake Button	AD
067	KGE95018	Bracket, P.W.Board	AD
068	KGE07589	Eject Lever Assembly	AG
069	KGD13702	Knob, Eject Lever	AD
070	KGE13758	Spring, Eject Lever	AC
072	KGE08939	Knob, Record Button	AE
073	KGE07894	Knob, Push Button	AE
074	KGE13759	Spring, Button Stopper	AB
075	KGE14562	Washer, Capstan Oil Cut	AA

KGD07601 (Auto Stop Device Assembly)

040	KGE07595	Worm Assembly	AK
041	KGE14100	Bearing, Worm	AB
044	KGD14095	Lever, Cam	AC
045	KGE14186	Spring, Cam Lever	AC
046	KGE14185	Spring, Detect Lever	AB
047	KGE07594	Detect Lever Assembly	AF
048	KGE07593	Bracket, Stop Device	AG
050	KGE14552	Spring, Worm Gear	AB
051	KGD14096	Gear, Worm	AD

MISCELLANEOUS

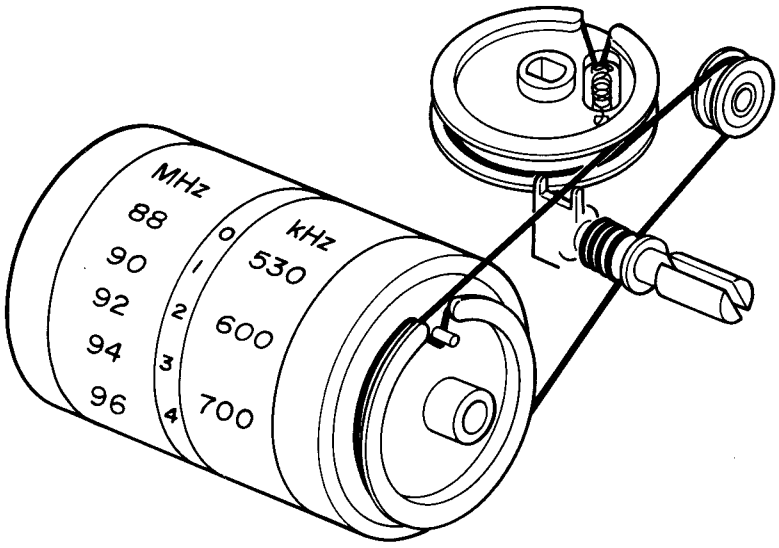
101	KGD95008	Lid, Battery Compartment	AF
102	KGE14803	Sponge, Battery Compartment Lid	AA
103	KGE95011	Indication Metal, Model Spec. (GF-2000H)	AD
103	KGE95809	Indication Metal, Model Spec. (GF-2000X)	AD
104	KGB95004	Cabinet, Rear	AU
105	KGE15829	Sponge, Battery Cushion	AB
106	KGE49169	Rod Antenna	AR
107	KGE95017	Holder, Rod Antenna	AB
108	KGE95526	Fiber, Masking	AC
109	KGE12666	Washer, Rod Antenna	AA
110	18086	Nut, 5φ	AB
111	KGE95421	Ribbon, Battery	AC

REF. NO.	PART NO.	DESCRIPTION	CODE
112	KGE14146	Bracket, Speaker	AE
113	KGE95802	Plate, Partition	AB
115	KGE95029	Net, Speaker	AC
116	KGE95746	Heat Sink, Transistor	AC
117	KGC14957	P.W.Board, Audio	AQ
118	KGD95037	Jack Mounting Plate	AD
119	KGE91233	Lug Terminal	AB
120	KGE49178	Holder, Fuse (Not used in Australia)	AF
121	KGD95035	Bracket, Power Transformer	AL
122	KGE96009	Insulator	AB
123	KGE42244	Cover, AC Socket (for Australia)	AD
124	KGD95315	Counter, Tape	AR
127	KGE13799	Washer, Power Transformer	AA
130	KGE08514	Knob Assembly, Tape/ Radio/Sleep	AL
131	KGE95045	Bracket, Selector Switch	AE
132	KGC14958	P.W.Board, LED	AD
133	KGE43046	Built-in Mic	AU
134	KGE95020	Holder, Built-in Mic	AD
135	KGE95047	Mask, Selector Switch	AB
136	KGE14444	Battery Terminal	AC
137	KGE14157	Battery Terminal	AC
138	KGE95422	Plate Spring, Cassette Holder	AD
139	KGE95305	Battery Spring	AC
143	KGE95034	Bracket, Volume Control	AE
144	KGE95792	Knob, Band Selector	AD
145	KGE95026	Plate Spring, Band Selector Knob	AD
146	KGE08504	Knob, Tuning	AL
147	KGE14148	Holder, Bar Antenna	AE
148	KGE13982	Washer, Dial Drum Shaft	AA
149	KGD55478	P.W.Board, Tunner	AM
150	KGE13987	Spring, Dial Cord Stringing	AB
151	KGD13544	Drum, Dial Cord	AD
152	KGE12355	Pulley, Dial Cord Stringing	AB
153	KGE07684	Shaft, Dial Cord Drive	AG
154	KGE95021	Bracket, Dial Drum Shaft	AE
155	KGD95365	Pulley, Dial Drum Drive	AD
156	KGD95766	Dial Drum	AH
157	KGE13568	Spring, Dial Drum Shaft	AB
158	KGE14139	Shaft, Dial Drum	AC
159	KGD95036	Holder, Dial Drum	AH
160	KGE95025	Shaft, Carrying, Handle	AC
161	KGE95027	Plate Spring, Carrying Handle	AR
162	KGE08567	Handle, Carrying	AR
163	KGE95015	Knob, Volume, Tone	AB
164	KGE95291	Plate Spring, Drive Shaft	AC
	KGC08853	Front Cabinet W/Front Panel	BD
165	KGB95005	Cabinet, Front	–
• 173	KGC95709	Panel Front	–
166	KGE95767	Indication Metal, SHARP	AB
167	KGE95207	Mirror	AA
168	KGE95423	Plate Spring, Cassette Holder	AC
169	KGE08916	Cassette Holder	AP
170	KGE95425	Felt, Cassette Compartment	AC
171	KGE95768	Indication Metal, Tape Selector	AD
172	KGE95028	Plate Spring, Carrying Handle	AB

REF. NO.	PART NO.	DESCRIPTION	CODE
174	KGE95683	Panel, Tuning Dial Window	AK
175	KGE95024	Panel, Tuning Indicator	AH
176	KGE95016	Panel, Battery/Tape Running Indicator	AH
177	KGE95424	Plate Spring, Cassette Holder	AC
178	KGE13794	Spring, Volume/Tone Knob	AB
179	KGE95982	Holder, LED Board	AB
180	KGE95983	Retainer, LED Board	AB
SW1	KGE42233	Switch, Record/Playback	AH
SW2	KGE42164	Switch, Tape/Radio/Sleep	AK
SW3	KGE42139	Switch, Tape Selector	AK
SW4	KGE42176	Switch, Operation	AE
SW101	KGE42218	Switch, Band Selector	AG
J1	KGD10894	Jack, Microphone	AG
J2	KGE42241	Jack, Remote	AF
J3	KGD5074	Jack, Timer	AE

REF. NO.	PART NO.	DESCRIPTION	CODE
J4	KGD5074	Jack, Earphone	AE
J5	KGE42243	Jack, DC 6V	AF
SO1	KGE42256	Socket, AC	AK
SO1	KGE42242	Socket, AC (for Australia)	AH
SO2	KGE42263	Socket, Voltage Selector	AM
SO3	KGE42258	Socket, Record/Playback	AL
F1	KGE49052	Fuse, 1A (Not Used in Australia)	AF
SP1	KGE43066	Speaker	AS
	KGE44441	Cord, AC Power (VDE)	AS
	KGE44442	Cord, AC Power (BS)	AR
	KGE44449	Cord, AC Power (SAA)	AQ
	KGE44450	Cord, AC Power	AP
	KGE44451	Cord, AC Power	·—
	KGE43009	Earphone	AF
	QPLGS0103AGZZ	Plug, Erasing	AE

DIAL CORD STRINGING



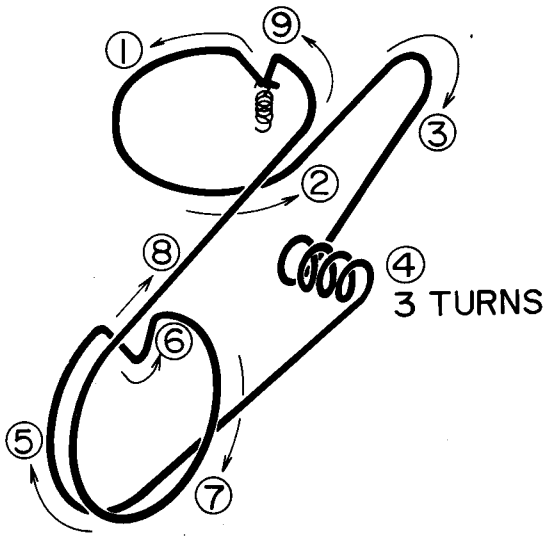


Figure 26